

Variation in the Crotalaria breviflora complex
in Brazil (Fabaceae)

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While revising Crotalaria of the Western Hemisphere, we encountered a problem in separating species related to C. breviflora DC.: C. breviflora DC., C. pohliana Benth. and C. subdecurrens Mart. This complex includes plants up to 2m tall with unifoliolate leaves and decurrent stipules. Its inflorescences are leaf-opposed and its yellow flowers are typical of Sect. Calycinae (Polhill 1968). The fruits are black at maturity. The chromosome number typical for the group is $n=16$. Its range extends into the Brazilian states of Goiás, Mato Grosso, Minas Gerais, Paraná, Paraíba, Rio de Janeiro, and São Paulo. In 1859, Bentham separated C. breviflora and C. pohliana from C. subdecurrens by calyx length, with the former two having calyces 5-6 lines (10.5 - 12.6 mm) in length and the latter subpollicaris (to 27 mm). Bentham separated C. breviflora from C. pohliana by following characters:

C. pohliana - sparsely pubescent; leaves oblong; stipules short-decurrent with oblique truncate apices.

C. breviflora - appressed pubescent; leaves oval; stipules (procedentis?) with teeth longer.

During this study we have attempted to apply these criteria to specimens from 13 herbaria without any meaningful result. The complex is quite variable in calyx size, leaf shape and stipule width and development. This variability has led to a proliferation of specific and varietal epithets. In an effort to resolve the problem, the calyx size and stipule development were plotted on a map of Brazil. Calyx lengths tended to be smaller southward and eastward but there was some overlap. Poorly and well developed stipules occur throughout the range regardless of calyx length.

Since Bentham had used calyx size classes, leaf proportions and stipule characters to delimit species in the complex, we plotted leaf length/width ratios against calyx lengths for all available specimens on a scatter diagram to determine if a clear separation could be detected (Figure 1). The symbols form a dense cluster with only a few showing separation. Leaf shape varies from elliptic to lanceolate in plants of all calyx lengths and leaf length/width ratios. The notation for strong stipule development is also widely scattered in the cluster. Pubescence in the group ranges from appressed to spreading in plants of all flower sizes. None of these characters seem to provide an adequate basis for recognition of more than a single species.

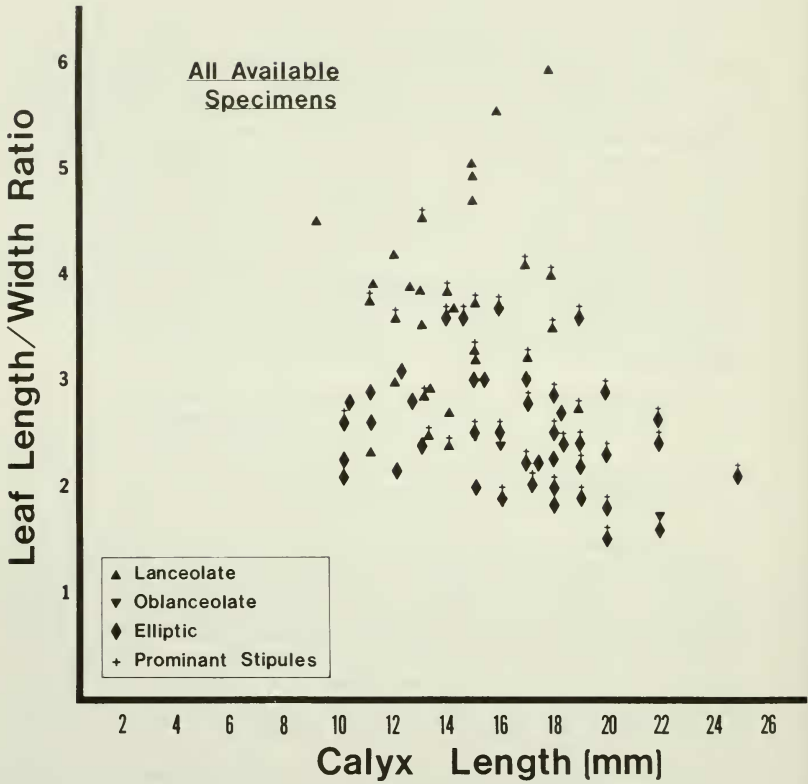


Figure 1. Combined specimens attributed to C. breviflora, C. pohliana and C. subdecurrens.

It was our good fortune to study a population sample of 14 specimens collected by Regnell at Caldas in Minas Gerais. A separate scatter diagram (Figure 2) was prepared from these specimens. In this single gathering calyx sizes range from 12 mm to 19 mm; leaf length/width ratios range from 2.0 to 5.6; leaf shapes range from elliptic to lanceolate; and pubescence ranges from appressed to loosely appressed to spreading. It appears that Regnell's sample ties all of Bentham's species in this complex together into one variable entity.

We feel that this variable complex is best treated as a single species C. breviflora, and that the entities previously treated as distinct species C. pohliana and C. subdecurrens should be reduced to one variety.

Distribution data and maps for this species will be presented in the revision to be published in Flora Neotropica.

Key to Varieties

Calyces 15.0 mm or less long, stipules usually weakly developed --
var breviflora

Calyces 15.1 mm or longer, stipules often well developed -----
var pohliana

Nomenclature

Crotalaria breviflora DC. Prodrômus 2:127. 1825.

Type: Brazil, Delessert Herb. (Holotype G, Photos, NY, US)

Crotalaria breviflora DC. var breviflora

C. divergens Benth. Ann. Nat. Hist. 3:429. 1839. Type: Brazil, Goiás, Ourofino, Pohl s.n. (Holotype K, Herb. Bentham!)

C. regnellii Benth. Linnaea 22:511-2. 1849. Type: Brazil, Minas Gerais, Caldas, Regnell 65 (Holotype K!); C. pohliana var. regnellii (Benth.) Benth. in Martius, Flora Brasiliensis 15:20. 1859.

C. breviflora var. riedelii Taubert, Flora 72 (n.s. 47) 423. 1889. Type: Brazil, Minas Gerais, pr. Ytu, Riedel 2053 (Holotype B, not seen, photo, NY)

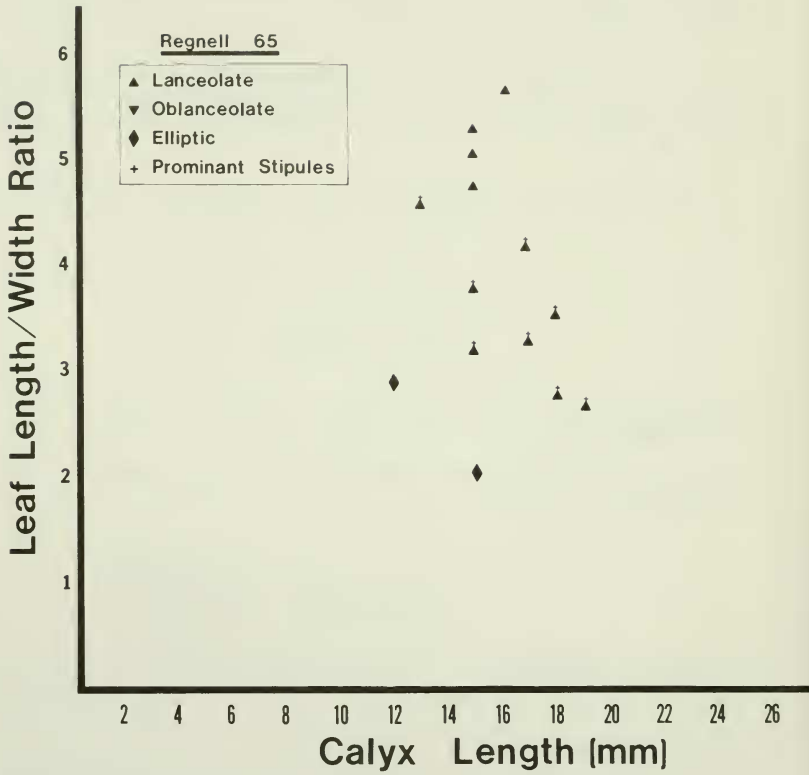


Figure 2. Specimens from a single location:
Caldas in Minas Gerais.

Crotalaria breviflora var. pohliana (Benth.) Windler & Skinner,
stat. nov.

C. pohliana Benth., Ann. Nat. Hist. 3:428. 1839. Type:
Brazil, Rio Uruhu and Villa Boa, Limoeiro, Pohl 1121. 1608
(Holotype, K!; isotypes B!, W!)

C. ferruginea Scheele, Linnaea 21:571. 1848. (non Graham in
Wallich 1831-1832, nom. nudum). Type: Brazil, Minas Gerais,
Hartleben s.n. (Holotype probably destroyed at B)

C. subdecurrens Martius, Flora Brasiliensis 15:20. 1859.
Type: Brazil, in campis ad Contendas, Martius 1606 (Lectotype
M!)

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Literature Cited

Bentham, George (1859) in C. F. P. Von Martius, Flora Brasiliensis 15:20.

Polhill, R. M. (1968) Miscellaneous notes on African species of Crotalaria L.: II, Kew Bulletin 22:169-348.